

CLAIMS

What is claimed:

- 1 1. A method comprising:
 - 2 engaging a first contact on a motherboard with a second contact on
 - 3 an electronic package, a portion of one of the first and second contacts being
 - 4 covered with an interlayer that has a lower melting temperature than the first and
 - 5 second contacts; and
 - 6 bonding the first contact to the second contact by melting the
 - 7 interlayer to diffuse the interlayer into the first and second contacts, the bonded first
 - 8 and second contacts having a higher melting temperature than the interlayer before
 - 9 melting.
- 1 2. The method of claim 1 wherein bonding the first contact to the second contact includes exposing the interlayer and the first and second contacts to an environment having a temperature greater than the melting temperature of the interlayer but below the melting temperature of the first and second contacts.
- 1 3. The method of claim 2 wherein exposing the interlayer and the first and second contacts to an environment having a temperature greater than the melting temperature of the interlayer but below the melting temperature of the first and second contacts includes maintaining the interlayer and the first and second contacts within the environment until a portion of the interlayer diffuses into the first and second contacts.
- 1 4. The method of claim 3 wherein maintaining the interlayer and the first and second contacts within the environment until a portion of the interlayer diffuses into the first and second contacts includes maintaining the interlayer and the

4 first and second contacts within the environment until a majority of the interlayer
5 diffuses into the first and second contacts.

1 5. The method of claim 4 wherein maintaining the interlayer and the
2 first and second contacts within the environment until a majority of the interlayer
3 diffuses into the first and second contacts includes maintaining the interlayer and the
4 first and second contacts within the environment until the interlayer is substantially
5 diffused into the first and second contacts.

1 6. The method of claim 2 wherein exposing the interlayer and the first
2 and second contacts to an environment includes exposing the interlayer and the first
3 and second contacts to the environment for a period of time.

1 7. The method of claim 6 wherein exposing the interlayer and the first
2 and second contacts to the environment for a period of time includes exposing the
3 interlayer and the first and second contacts to the environment until the interlayer
4 melts and then solidifies within the first and second contacts.

1 8. The method of claim 1 wherein engaging a first contact on a
2 motherboard with a second contact on an electronic package includes pressing the
3 first contact against the second contact.

1 9. The method of claim 1 wherein bonding the first contact to the
2 second contact includes exposing the interlayer and the first and second contacts to
3 an environment having a temperature less than 125 degrees Centigrade.

1 10. The method of claim 1 further comprising covering the portion of
2 one of the first and second contacts with the interlayer.

1 11. The method of claim 10 wherein covering the portion of one of the
2 first and second contacts with the interlayer includes covering a portion of both of
3 the first and second contacts with the interlayer.

1 12. The method of claim 10 wherein covering the portion of one of the
2 first and second contacts with the interlayer includes covering all exposed portions
3 of one of the first and second contacts with the interlayer.

1 13. The method of claim 10 wherein covering the portion of one of the
2 first second contacts includes electroplating the interlayer onto the portion of one of
3 the first and second contacts.

1 14. An electronic assembly comprising:
2 a motherboard that includes a first contact;
3 an electronic package that includes a second contact bonded to the
4 first contact; and
5 an interlayer diffused within the first and second contacts such that
6 the bonded first and second contacts have a higher melting temperature than the
7 interlayer before being diffused into the first and second contacts.

1 15. The electronic assembly of claim 14 wherein the first and second
2 contacts are both made from the same material.

1 16. The electronic assembly of claim 14 wherein the interlayer is
2 uniformly diffused within the first and second contacts.

1 17. The electronic assembly of claim 14 wherein the first contact is a pad
2 and the second contact is a ball.

1 18. The electronic assembly of claim 14 wherein the bonded first and
2 second contacts have a melting temperature greater than 150 degrees centigrade.

1 19. The electronic assembly of claim 14 wherein the electronic package
2 includes a processor.

1 20. An electronic system comprising:
2 a bus;
3 a memory coupled to the bus; and
4 an electronic assembly coupled to the bus, the electronic assembly
5 including a motherboard having a first contact and an electronic package having a
6 second contact bonded to the first contact, the electronic assembly further including
7 an interlayer diffused within the first and second contacts such that the bonded first
8 and second contacts have a higher melting temperature than the interlayer.

1 21. The electronic system of claim 20 further comprising a voltage
2 source electrically coupled to the electronic package.

1 22. The electronic system of claim 20 wherein the electronic package
2 includes a processor and the voltage source supplies power to the processor.